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<b>Notice of Allowability</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/650,254	CHIN, HON WAH	
	<b>Examiner</b>	<b>Art Unit</b>	
	Kenny Lin	2152	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 8/3/2007.
2. ☒ The allowed claim(s) is/are 1,7,9-21 now renumbered as 1-15.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1. <input type="checkbox"/> Notice of References Cited (PTO-892)</li> <li>2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</li> <li>3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br/>Paper No./Mail Date _____</li> <li>4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br/>of Biological Material</li> </ol> | <ol style="list-style-type: none"> <li>5. <input type="checkbox"/> Notice of Informal Patent Application</li> <li>6. <input type="checkbox"/> Interview Summary (PTO-413),<br/>Paper No./Mail Date _____</li> <li>7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment</li> <li>8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance</li> <li>9. <input type="checkbox"/> Other _____</li> </ol> |
|---|---|

### **DETAILED ACTION**

1. Claims 1, 7, 9-21 are presented for examination.

### **EXAMINER'S AMENDMENT**

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Christopher Bernard, Reg. No. 48,234, on September 4, 2007.

3. The application has been amended as follows:
  1. (Currently Amended) An address protocol for forwarding a message packet from a source node to a destination node along a sequence of communicatively coupled nodes functioning as a linear chain network, the address protocol comprising:
    - a relative source address field programmed with an initial value at the source node corresponding to a destination node that is a preselected number of nodes away from the source node along the linear chain network;
    - a relative destination address field containing a counter and a directional code corresponding to a port of the source node from which the message packet is to be sent along the linear chain network;

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wherein the counter is incremented by a preselected step in value at each node the message packet is forwarded to along the chain network until the counter reaches the initial value, thereby indicating that the destination node has been reached;

an identifier field containing an identifier, wherein the identifier indicates whether the message packet contains relative address protocol information; [[and]]

wherein the destination node does not require address information in addition to the counter reaching the initial value to accept the message packet; and

wherein, when in the sequence of communicatively coupled nodes functioning as a linear chain network, ~~a data each message packet~~ encounters a branching node having two or more output ports before reaching the destination node, ~~namely a branching node~~, the branching node has programming configured to return a message indicating that the branching node was reached and reporting the number of hops the branching node is away from the source node.

2.-6. (Canceled)

7. (Previously Presented) The protocol of Claim 1, wherein the initial value is an integer having an absolute value equal to the desired number of node hops and the counter is incremented by a step in value of one at each node.

8. (Canceled)

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9. (Previously Presented) The protocol of Claim 7, wherein the counter is initially set to zero and the counter is counted up by one at each node hop until the initial value is reached.
10. (Previously Presented) The protocol of Claim 1, wherein the initial value is a linear function of the desired number of node hops.
11. (Previously Presented) The protocol of Claim 1, wherein at least one node in the linear chain is a regenerator element.
12. (Previously Presented) The protocol of Claim 1, wherein the chain network is a virtual chain network.
13. (Previously Presented) The protocol of Claim 1, wherein the chain network comprises a portion of a ring network.
14. (Currently Amended) A method of sending a message packet along a portion of a network functioning as a linear chain network from a source node to a destination node using an address protocol having an identifier field containing an identifier, wherein the identifier indicates whether the message packet contains relative address protocol information, a relative source address field for storing an initial value, and a relative destination address field containing a counter and a directional code corresponding to a

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port of the source node from which the message packet is to be sent along the linear chain network, the method comprising the steps of:

selecting the initial value to be a function of a desired number of node hops along the linear chain network from the source node;

programming the relative source address field to have the initial value;

incrementing the counter by a preselected step in value at each node that the message packet is forwarded to; [[and]]

accepting the message packet at a destination node when the counter value reaches the initial value, without requiring address information in addition to the counter reaching the initial value to accept the message packet, [[and]]

wherein the preselected step in value is chosen so that the counter reaches the initial value when the packet has completed the desired number of node hops; and

wherein, when in the sequence of communicatively coupled nodes functioning as a linear chain network, ~~a data~~ each message packet encounters a branching node having two or more output ports before reaching the destination node, ~~namely a branching node~~, the branching node has programming configured to return a message indicating that the branching node was reached and reporting the number of hops the branching node is away from the source node.

15. (Previously Presented) The method of Claim 14, wherein the message packet comprises a status query message and further comprising the steps of:

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requesting the destination node to send a status message packet having a second relative source address field and a second counter in a direction along the chain back to the source node;

programming the second relative source address field to have the initial valued-incrementing the second counter by the preselected step in value at each node that the message packet is forwarded to; and

accepting the status message packet when the counter reaches the initial value, wherein the status message packet is returned to the source node.

16. (Original) The method of Claim 15, wherein at least one of the nodes of the chain includes a regenerator element.

17. (Previously Presented) The method of claim 15, further comprising the steps of:  
selecting a return message;  
transmitting the return message in the direction to the source node;  
incrementing the second counter by the preselected step in value at each node that the message packet is forwarded to; and  
accepting the return message packet at the source node when the second counter reaches the initial value.

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18. (Currently Amended) A method of sending a message packet along a chain network having regenerator nodes from a source node to a destination node using an address protocol having an identifier field containing an identifier, wherein the identifier indicates whether the message packet contains relative address protocol information, a relative source address field for storing an initial value, and a relative destination address field containing a counter and a directional code corresponding to a port of the source node from which the message packet is to be sent along the linear chain network, the method comprising the steps of:

selecting the initial value to be a function of a desired number of node hops along the linear chain from the source node;

incrementing the counter by a preselected step in value at each node that the message packet is forwarded to; [[and]]

accepting the message packet at a destination node when the counter value reaches the initial value, without requiring address information in addition to the counter reaching the initial value to accept the message packet, [[and]]

wherein the preselected step in value is chosen so that the counter reaches the initial value when the packet has completed the desired number of node hops; and

wherein, when in the sequence of communicatively coupled nodes functioning as a linear chain network, ~~a data~~ each message packet encounters a branching node having two or more output ports before reaching the destination node, ~~namely a branching node~~, the branching node has programming configured to return a message indicating that the branching node was reached and reporting the number of hops the branching node is away from the source node.

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19. (Currently Amended) The method of Claim 18, wherein the message packet comprises a status query message and further comprising the steps of:

requesting the destination node to send a status message packet having a second relative source address field and a second counter back to the source node;

programming the second relative source address field to have the initial valued-incrementing the second counter by the preselected step in value at each node ~~that the~~ that the message packet is forwarded to; and

accepting the message packet when the second counter reaches the initial value, wherein the status message packet is returned to the source node.

20. (Previously Presented) The method of Claim 19, further comprising the steps of:

sending a plurality of the status query messages to a plurality of destination nodes, the destination nodes corresponding to different initial values indicating that the destination nodes are each a different number of node hops from the source node;

receiving the status message packets from responding destination nodes; and determining the relative distance of responding nodes as a function of the initial value corresponding to each responding node,

wherein a fault is isolated to a part of the network subsequent to the responding active node the greatest number of node hops from the source node.

21. (Currently Amended) The method of Claim 14, further comprising the step of:



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detecting a fault in a linear chain of regenerator nodes using the relative address protocol by:

sending a first status query message packet requesting a return status message from a destination node at least one node hop from the source node; [[and]]

sending at least one subsequent status query message packet requesting a return status message from another destination node corresponding to a different number of node hops from the source node and recording whether the return status message is received at the source node; and

determining the node the greatest number of node hops from the source node replying to the status query message directed to it,

wherein a fault is isolated to a portion of the chain network subsequent to the node the greatest number of node hops from the source node returning the corresponding status message.

***Allowable Subject Matter***

4. Claims 1, 7, 9-21 are allowed.

5. The following is an examiner's statement of reasons for allowance: None of the prior arts of the record individually or in combination explicitly teaches or fairly suggests each and every claimed limitation of the current invention, especially the limitation of programming a source address field with an initial value corresponding to a destination node away from the source node along the linear chain network, destination address field containing a count that increments in

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value at each node the message packet is forwarded to along the chain network and indicate that the destination node has been reached when the counter reaches the initial value; and when the message packet encounters a branching node, which is prior to reaching the destination node, the branching node returns a message indicating that the branching node was reached and report the number of hops the branching node is away from the source node. The best prior art of the record, Judd et al., fails to disclose the process of returning a message from the branching node to report that the message packet has reached a branching node and also report the number of hops the branching node is away from the source node when the message packet encounters a branching node.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenny Lin whose telephone number is (571) 272-3968. The examiner can normally be reached on 8 AM to 5 PM Tue.-Fri. and every other Monday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bunjob Jaroenchonwanit can be reached on (571) 272-3913. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ksl  
September 4, 2007

